**Rise in water level of oceans due to global warming**

1749. SHRI RAJKUMAR DHOOT: Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether it is a fact that snow covered area of North Pole has shrunken to 4300 kilometers and likely to shrink further to 3100 kilometers in next four years due to global warming the consequence of which will be rise in water level of oceans around India sub-merging of coastal areas and drying up of rivers;

(b) if so, whether the situation been assessed;

(c) if so, the details thereof; and

(d) the steps proposed to be taken up by Government to prevent loss to lives and property?

THE MINISTER OF EARTH SCIENCES (SHRI KAPIL SIBAL): (a) Yes, Sir. It is a fact that sea ice around North Pole is melting at an alarming rate. North Pole that lies at the center of Arctic Ocean is surrounded by frozen sea ice. Much of this frozen sea ice in the arctic, normally melts each summer and rebuilds in the following winter season. However, due to the global warming, the rebuilding of ice is not coining back to its original levels, because of which the recovery is not complete.

Many studies using passive microwave data, have established that average September sea ice extent for the period 1979-2000 which stood at 7.09 million Sq km has been reduced by 39% at the and of melt season in September, 2007. The average sea ice extent for the month of September, 2007 at 4.28 million sq km, has been the lowest September, figures ever recorded so far. The Arctic sea Ice extent on 23rd September, 2008 was at 4.59 million sq km. the sea ice is getting thinner and hence more vulnerable to melting in subsequent summer.

(b) and (c) Sea level rise as a product of global warming, takes place through two main processes, melting of the land ice and thermal expansion of sea water due to rise in sea surface temperatures. Based on the tide gauge data, the rate of sea level rise during the 20th century has been found to be in the range of 0.8 to 3.3 mm per year with an average of 1.8 mm/year.

(d) The rise in the sea level due to melting of sea ice around North Pole is not expected to be sudden or abrupt. However, to safeguard the interests of large section of population living in the coastal areas, Government has set up a network of tidal gauges all along the Indian Coast to monitor the sea level.

**Vision and mission of NIOT**

1750. DR. K. MALAISAMY: Will the Minister of EARTH SCIENCES be pleased to state:

(a) the vision and mission of National Institute of Ocean Technology (NIOT);